

WHAT IS CLAIMED IS:

CLAIMS

- 5 1. A process for delivery of water nanocluster compositions through the outmost layer of human skin, comprising the steps of:
- preparing a water nanocluster water-in-oil (W/O) emulsion composition comprising water nanoclusters having with at least one dimension thereof being less than about ten (10) nanometers and an oil formulation in the form of a W/O
- 10 emulsion, and
- applying said water nanocluster composition into the outermost layer of human skin.
- 15 2. The process of Claim 1 wherein said water nanocluster composition further comprises one or more surfactants selected from the group consisting of fatty acids, ethoxylates and alcohols.
- 20 3. The process of Claim 2 wherein said surfactants comprises about 5 to 25% by weight of said water nanocluster composition.
4. The process of Claim 1 wherein said water clusters are predominantly in concatenated pentagonal form.
- 25 5. The process of Claim 1 wherein said water clusters are predominantly in the form of dodecahedrals.
6. The process of Claim 1 wherein said water nanocluster composition is comprised of 10-50% by weight water.
- 30 7. The process of Claim 1 wherein said oil formulation is a cosmetic oil.

8. The process of Claim 7 wherein said water nanocluster composition is comprised of:

- (1) about 5 to 50% by weight water,
- (2) about 10 to 90% by weight of a cosmetic oil formulation and
- 5 (3) about 5 to 50% by weight of one or more surfactants selected from the group consisting of fatty acids, ethoxylates and alcohols.

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10 9. The process of Claim 1 wherein said water nanoclusters in said water nanocluster composition are present together with bulk water but constitute the predominate form of water present in said water nanocluster composition.

10. The process of Claim 1 wherein said oil formulation includes pharmaceutical ingredients.

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15 11. A water-in-oil (W/O) emulsion composition comprised of:

- (1) about 5 to 50% by weight water containing water clusters having at least one dimension of less than about 10 nanometer,
- (2) about 10 to 90% % by weight of an oil formulation and
- (3) about 5 to 50% % by weight of one or more surfactants selected
- 20 from the group consisting of fatty acids, ethoxylates and alcohols. The composition of Claim 11 wherein said at least one dimension is less than about 1 nanometer.

25 12. The composition of Claim 11 wherein said water clusters are predominantly in concatenated pentagonal water cluster form.

13. The composition of Claim 13 wherein said concatenated pentagonal water clusters are in the form of pentagonal dodecahedrals having protruding delocalized  $p\pi$  orbitals.

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14. The composition of Claim 11 wherein said concatenated pentagonal water clusters are comprised of twenty-one or fewer water molecules and having a diameter of less than about 0.8 nanometers in diameter

5 15. The composition of Claim 11 wherein said water clusters are in multi-water cluster arrays.

10 16. The composition of Claim 11 wherein said multi-water cluster arrays are need-like in form, having at least one dimension less than about 1 nanometer and a second dimension greater than about 3 nanometers

17. The composition of Claim 11 wherein the composition is in the form of a water-in-oil nanoemulsion.

15 18. The composition of Claim 18 wherein said water/oil nanoemulsion is comprised of micelles containing the water clusters and surfactants, and said micelles have an average diameter of about 5 nanometers.

20 19. The composition of Claim 11 wherein the composition is in the form of a gel.

20. The composition of Claim 11 wherein the composition is in the form of a cream.

25 21. The composition of Claim 11 wherein the composition is in the form of a liquid.

30 22. The composition of Claim 11 wherein the oil formulation is a cosmetic oil selected from the group consisting of soybean, peanut, olive sesame and paraffin.

23. The composition of Claim 23 said oil formulation includes one or more additives selected from the group consisting of nutrients, fragrances and sunscreens, which are soluble in the cosmetic oil formulation.

- 5 24. The composition of Claim 11 wherein said oil formulation includes pharmaceutical ingredients.

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